CLAIMS

We claim:

1. A gap fill test pattern for a shallow trench isolation (STI) gap fill, comprising:

   a. a test region comprising an outer circumference defining a first interior area; and

   b. a test pattern disposed in the first interior area, the test pattern fabricated using a shallow trench adapted for testing of shallow trench isolation gap fill, the test pattern defining a border to a second interior area.

2. The gap fill test pattern of claim 1, wherein the test region is at least one of (i) a square rectangular region, (ii) a non-square rectangular region, or (iii) a substantially orthogonal region defining a border comprising at least one discontinuity.

3. The gap fill test pattern of claim 2, wherein:

   a. the square rectangular region comprises an area of around 1 μm^2;

   b. the test pattern border defines a square comprising an area of around 0.09 μm^2; and

   c. a width of the test pattern border is from around 0.085 μm to around 0.200 μm.

4. The gap fill test pattern of claim 2, wherein:

   a. the non-square rectangular region comprises an area of around from around 1 μm^2 to around 3 μm^2;

   b. the test pattern defines a rectangle, comprising border comprising a width of around 0.3 μm, the test pattern rectangle further comprising a height of around one-half the height of the rectangular region and a width of from around 0.085 μm to around 0.200 μm.

5. The gap fill test pattern of claim 1, wherein the test pattern comprises at least one of (i) a rectangle with a contiguous border or (ii) a rectangle with at least one discontinuity in its border.

6. The gap fill test pattern of claim 5, wherein the rectangle with a contiguous border is adapted to simulate a corner region of a static random access memory cell.

7. The gap fill test pattern of claim 5, wherein the rectangle with at least one discontinuity in its border is adapted to simulate an outer diameter line end region of a static random access memory cell.

8. The gap fill test pattern of claim 5, wherein the rectangle with at least one discontinuity in its border comprises a discontinuity of around 0.1 μm.

9. The gap fill test pattern of claim 5, wherein the rectangle with at least one discontinuity in its border comprises two discontinuous border segments, each comprising a first section intersecting a second section at a substantially right angle.

10. A gap fill test region pattern for a shallow trench isolation (STI) gap fill, comprising:

a. a test area fabricated on a predetermined region of a semiconductor wafer, the test area further comprising a border and a first interior area;

b. a plurality of test regions disposed within the first interior area, each test region further comprising:

i. an outer circumference;

ii. an interior area; and

iii. a rectangular test pattern disposed in the interior area, the test pattern defining a border to a third interior area, the test pattern further comprising at least one shallow trench adapted for testing of shallow trench isolation gap fill.

11. The gap fill test layout of claim 10, further comprising:

a. a grid defining a predetermined number of columns and rows within the fabricated test area;

b. an array of first rectangular test regions disposed within the grid, each first rectangular test region occupying a unique grid cell defined by a column and row of the grid; and

c. an array of second rectangular test regions disposed within the grid, each second rectangular test region occupying a unique grid cell defined by a column and row of the grid, the second rectangular test regions further comprising at least one dimension which differs from the dimensions of the first rectangular test regions.

12. The gap fill test layout of claim 11, wherein:

a. the first rectangular test regions are squares.

13. The gap fill test layout of claim 12, further comprising:

a. an array of third rectangular test regions disposed within the grid, each third rectangular test region occupying a unique grid cell defined by a column and row of the grid, the third rectangular test regions further comprising at least one dimension which differs from a dimension of the first rectangular test regions and at least one dimension which differs from a dimension of the second rectangular test regions.